PROJECT: 23-1040 MON, MILL CREEK FISH PASSAGE ASSESSMENT

Sponsor: Fish & Wildlife Dept of Program: Salmon State Projects Status: Application Submitted

Parties to the Agreement

PRIMARY SPONSOR

Department of Fish and Wildlife
Address PO Box 43135
City Olympia **State** WA **Zip** 98504-3135
Org Type State Agency
Vendor # SWV0007529-00
UBI
Date Org created
Org Notes

link to Organization profile
☐ Org data updated

SECONDARY SPONSORS

No records to display

MANAGING AGENCY

Recreation and Conservation Office

LEAD ENTITY

Snake River Salmon Rec Bd LE

External Systems

SPONSOR ASSIGNED INFO

Sponsor-Assigned Project Number

Sponsor-Assigned Regions

EXTERNAL SYSTEM REFERENCE

Source	Project Number	Submitter
HWS	23-1040	AFitzgerald

Project Contacts

Contact Name Primary Org	Project Role	Work Phone	Work Email
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Worksites & Properties

#	Worksite Name
#1	Whitman Mission National Historical Site
#2	Mouth of Yellowhawk Creek

Worksite Map & Description

Worksite #1: Whitman Mission National Historical Site

WORKSITE ADDRESS

Street Address 328 Whitman Mission Rd.
City, State, Zip Walla Walla WA 99362

Worksite #2: Mouth of Yellowhawk Creek

WORKSITE ADDRESS

Street Address 2904 Old Milton Highway
City, State, Zip Walla Walla WA 99362

Worksite Details

Worksite #1: Whitman Mission National Historical Site

SITE ACCESS DIRECTIONS

TARGETED ESU SPECIES

Species by ESU	Egg Present	Juvenile Present	Adult Present	Population Trend
Chinook-Middle Columbia River Spring, Not Warranted		✓	✓	Rising
Steelhead-Middle Columbia River, Walla Walla River, Threatened	✓	✓	✓	Declining

Reference or source used

TARGETED NON-ESU SPECIES

Species by Non-ESU	Notes
Bull Trout	

Worksite #2: Mouth of Yellowhawk Creek

SITE ACCESS DIRECTIONS

TARGETED ESU SPECIES

Species by ESU	Egg Present	Juvenile Present	Adult Present	Population Trend
Chinook-Middle Columbia River Spring, Not Warranted		✓	✓	Rising
Steelhead-Middle Columbia River, Walla Walla River, Threatened	✓	✓	✓	Declining

Reference or source used

TARGETED NON-ESU SPECIES

Species by Non-ESU	Notes
Bull Trout	

Project Location

RELATED PROJECTS

Projects in PRISM

PRISM Number	Project Name	Program Name	Current Status	Relationship Type	Notes
No related project selected					

Related Project Notes

Project Proposal

Project Description

CTUIR and WDFW are proposing a monitoring project, assessing anadromous fish passage in Mill Creek (tributary to Walla Walla River) using PIT tags and Instream PIT Tag Detection Systems (IPTDS). In 2023, CTUIR will be releasing 100,000 hatchery spring Chinook smolts into upper Mill Creek as part of an on-going reintroduction effort. Staff will PIT tag 15,000 fish/year for the next 2 years. Passage routes and success will be assessed through the Mill Creek Flood control channel and Yellowhawk Creek from 2024-2026, providing critical, empirical fish passage data that is currently lacking for Mill Creek. Passage data acquired from hatchery spring Chinook acting as surrogates, could be used to help inform decision making regarding listed steelhead passage.

The project sponsors are requesting $136,737 for the purchase of 15K PIT tags and an IPTDS for the site near the mouth of Mill Creek. An additional IPTDS in Yellowhawk Creek will be placed near the mouth as a cost share with CTUIR. The PIT Tags, in addition to the IPTDS infrastructure will provide data to assess passage of adult spring Chinook through the flood control channel, filling a data gap around anadromous adult passage. Staff from both CTUIR and WDFW will install and maintain the instream PIT arrays. Funding match will be provided by in-kind cost shares from CTUIR and WDFW BPA funded Walla Walla Monitoring and Evaluations projects for IPTDS installation and PIT tagging (CTUIR: 2000-039-00; WDFW: 2000-039-01).

Project Questions

#1: Problem statement. What are the problems your monitoring project seeks to address? Include the source and scale of each problem. Describe the site, reach, and watershed conditions. Describe how those conditions impact salmon populations. Include current and historic factors important to understand the problems.

This project is looking to address the data gap of adult passage data in Mill Creek. There have been detections of spring Chinook, steelhead, and bull trout over the past 15 years, but besides a concerted effort from USFWS for bull trout (Koch et al 2014), there have not been sufficient adult passage data to inform current and future passage/habitat projects. The limited data available has documented adult salmonids utilizing both Mill Creek and Yellowhawk Creek to access the upper watershed above the Bennington Lake Diversion Dam but were based on opportunistically detected fish tagged for other purposes. This study would tag a statistically significant amount of juvenile spring Chinook over a two-year period in order to ensure the number of returning adults would provide sufficient adult passage data to help inform future work/management actions within the Mill Creek watershed. The Chinook would be used as a surrogate to help inform passage limitations for listed summer steelhead and bull trout in the basin. Although not a perfect surrogate for either of the ESA listed species, the hatchery Chinook allow project staff to implant a significant number of PIT tags which would not otherwise be possible due to trapping/ESA take limitations in the basin. At current tagging rates for natural origin steelhead at existing monitoring projects (CTUIR) it would take 10-15 years to acquire the same number of detections that could be expected from this proposal. Because 2023 is the first year that hatchery spring Chinook will be released as juveniles into Mill Creek, this is the first time we have had this opportunity to utilize a surrogate in such large numbers to help inform passage for local listed fish: steelhead and bull trout.

#2: Describe the limiting factors, and/or ecological concerns, and limiting life stages (by fish species) that your project expects to address; include references or rationale behind the identified limiting factors. Where appropriate, reference the priorities of the relevant salmon recovery plan or state strategy to demonstrate how the proposal addresses those priorities.

One of the main limiting factors to anadromous fish in Mill Creek is fish passage through the town of Walla Walla. Many other projects have looked to correct this limitation. What this study is attempting to do is provide sufficient adult passage data which will essentially be a proof of concept for the completed passage work to date, and baseline passage data to compare the effectiveness of future projects to.

#3: Why are SRFB funds necessary, rather than funds from other sources? State if other funds are unavailable. Identify other funding partnerships (including in-kind contributions such as salaries, logistical support) involved and explain what aspects of monitoring the proposed SRFB funds will cover.

Current funding sources available to WDFW or CTUIR are not adequate to implement this monitoring at this time. A large number of PIT tags are required annually (15,000 minimum/year) with current PIT tag costs of $3.06/tag. In addition, depending on the site/location and size of stream , instream PIT tag arrays can vary in costs from $25,000-$100,000. Other funding sources are currently being queried, but there are no guarantees those will come through. Much effort to improve passage in Mill Creek is already underway, and more planned in the very near future. We feel the time is prime right now to implement more monitoring sites, but to also greatly increase the number of PIT tagged fish that will return in the next few years to fully assess these actions.

WDFW and CTUIR have coordinated closely on this proposed project. Effort from both agencies to acquire 15,000 PIT tags for the 2023 release, and the tagging of those fish has already occurred. Once installed, future array operations/maintenance (in-kind contributions of salaries, implanting PIT tags, etc...) will be a joint effort from both WDFW and CTUIR from other funding sources.

#4: How will your project inform future management actions in light of climate change? For example, will results from the monitoring make it possible to assess whether habitat improvements will move toward environments that are resilient to adverse climate effects?

We're unsure if the project will provide enough data long-term to inform future management actions related to climate change. Our current proposal is to PIT tag and release hatchery origin spring Chinook for the next 2years (2023-2024). Adults will return from those releases from 2024-2026. In Mill Creek, climate change would likely manifest itself in warmer water temperatures and decreased flows at the time adult spring Chinook would be returning to the basin. If PIT tagged fish from this monitoring project come back under extreme conditions from 2024-2026, say a drought year with higher water temperatures, then perhaps any PIT tag passage data obtained during those conditions would be used to inform such conditions. However, the data would be pretty limited and may not fully represent environmental conditions that may occur in the future.

#5: What are the assumptions and physical constraints that could impact whether you achieve your objectives? Assumptions and constrains are external conditions that are not under the direct control of the project, but directly affect the outcome of the project. These may include ecological and geomorphic factors, land-use constraints, public acceptance of the project, delays, or other factors. How will you address these issues if they arise?

PIT tagged hatchery spring Chinook juvenile are being released by CTUIR in Mill Creek for the first time in 2023. It currently unknown how these fish will survive the downstream migration and return as adults. If mortality is higher than we expect, fewer adult spring Chinook will return than anticipated and may limit the number of PIT tag detections. This could ultimately impact our ability to assess passage and passage times through the system.

We currently have signed landowner agreement to install two additional PIT tag arrays on lower Mill Creek (Whitman Mission) and Yellowhawk Creek. While the National Park Service has agreed, we currently haven't assessed the property for the PIT array site, and we don't know if that could come with additional provisions from the National Park Service. Until we get further confirmation of this proposal moving forward and getting funded, there is still a chance that an alternative site will have to sought out.

#6: Will veterans (including the veterans conservation corps) be involved in the project? If yes, please describe.

No

#7: Describe how the proposed monitoring will provide data essential for advancing salmon recovery. What high priority information needs or data gaps identified within the regional recovery plan and/or associated regional research, monitoring, and evaluation plan (or lead entity strategy in areas without a recovery region) will the study address?

This proposed monitoring will provide data on passage and passage times of spring Chinook through Mill and Yellowhawk creeks, with a focus of assessing this passage in the greatly altered sections of each creek (e.g. the concrete channel of Mill Creek that run through the center of Walla Walla). This monitoring will inform previous and current efforts to enhance passage capabilities of salmonids through Mill Creek (e.g. roughened panels, notching of full spanning weirs, improved fish ladder at Bennington Dam). All of these efforts are being done for advancing salmon recovery within Mill Creek. Currently, there is a general lack of adult fish passage data available in Mill Creek. By adding in additional PIT tag arrays (on multiple fronts), and increasing the number of PIT tags in salmonids, assessments can be made to verify if the passage improvements have worked, or need additional actions. This proposed monitoring project is consistent with expanded Research, Monitoring & Evaluation efforts identified in the Snake River Salmon Recovery Plan. Additionally, the Regional Technical Team has identified actual (not modeled) fish passage data in Mill Creek as a high priority critical data gap.

#8: Which fish species or habitats will be monitored or measured and why?

For this proposal, currently hatchery origin spring Chinook will be the focal species monitored. While not ESA-listed, spring Chinook re-introduction efforts in the Walla Walla Basin by CTUIR is of utmost importance to them, re-establishing their First Foods initiative. Juvenile hatchery spring Chinook from the CTUIR SF Walla Walla Hatchery will be planted into Mill Creek for the first time ever in the spring of 2023. WDFW and CTUIR have already joined their resources to implant 15,000 of these fish with PIT tags to get a jump start on this monitoring effort (but additional PIT tags will need to be acquired in the next few years - hence this proposal). Since hatchery spring Chinook are not ESA-listed, and they are readily available at the hatchery for PIT tagging, it makes them our only possible surrogate to relate steelhead or bull trout passage to. Ideally, a high number of adult PIT tags in spring Chinook and their subsequent detections would give us baseline data to compare to future PIT tags with ESA-listed summer steelhead or bull trout. The infrastructure put in place by this proposal would help get to the ultimate goal, a data set of passage data using steelhead and bull trout, but that will require ESA coverage, and additional efforts that are currently not possible.

#9: What fish restoration actions will the proposed monitoring inform or affect?

There is currently large funding actions that have been, are, or will be completed in Mill Creek over the next few years (work in the concrete channel by Tri-State Steelheaders, work on the river spanning weirs by the Corps of Engineers, proposed passage project at Gose Street, and a new fish ladder on the north shore of Bennington Dam). All of these are aimed at providing increased passage and decreased passage times through this section of Mill and Yellowhawk creeks. While some PIT tag detection data is available within the basin, this project will not only increase that aspect, but will also greatly increase the number of available PIT tags that will be detected as returning adults in a few years, at about the right time when many of these fish passage projects will be completed. It will also put in place additional array infrastructure that will allow for increased ability to assess passage, both upstream and downstream, for any future tagged steelhead or bull trout in the basin.

#10: Explicitly identify the geographic scale and extent of proposed data collection.

The intent of the project is to obtain overall passage and passage time data from adult spring Chinook returning to Mill and Yellowhawk creeks, with the lowest assessment point being near the mouth of each creek, and upper end at Bennington Dam. However, the large number of PIT tags being proposed, additional data on survival of juveniles migrating downstream through the Walla Walla basin and into the Columbia River hydrosystem will be available, but those aspects are not the focus of the project.

#11: If the project is part of a larger overall monitoring project or strategy, describe the goal of the overall strategy, explain individual sequencing steps, and identify which steps are included in this application for funding.

The PIT tag data from the tagged spring Chinook could be used to help inform mainstem Columbia River juvenile and adult passage and survival of mid Columbia hatchery spring Chinook, but won't be the focus of this funding request.

#12: Are the data to be produced by the project available from other sources (literature, other SRFB monitoring, etc.) or being adequately addressed by prior or ongoing studies or existing literature?

No. The only way to get passage data is to have PIT tag arrays installed at the lower and upper end of each creek (Mill and Yellowhawk) to be able to assess passage and passage times. In addition, adequate number of PIT tags need to be present to estimate these factors. Our proposal will greatly increase the number of PIT tagged fish in Mill and Yellowhawk Creeks to determine these factors. Currently, the only PIT tagged fish within the basin come from CTUIR effort of smolt trapping in Mill Creek. However, only a limited number of tags can be put in annually from this effort, and those numbers are inadequate to fully assess passage and passage times.

#13: Describe previous or ongoing assessment or inventory efforts in the project's geographic area that are relevant to the monitoring project and describe how this project will build upon, rather than duplicate, the completed or ongoing work. Include detail about other monitoring efforts that complement or could help accomplish the overall objective, so that readers can understand the gaps, if any.

Fish monitoring in the Mill Creek basin has been fairly limited over the years. WDFW previously conducted steelhead spawning ground surveys in the upper basin but those surveys have been suspended due to budget cuts. The U.S. Fish and Wildlife Service conducted a bull trout passage assessment (Koch et al 2014), with similar goals to this current proposal. The CTUIR has been operating a smolt trap just upstream of Bennington Dam with the primary objective of PIT tagging natural origin spring Chinook and steelhead migrants from upper Mill Creek, and estimating downstream passage survival. These PIT tagged fish have provided some limited information on downstream passage routes and survival within Mill/Yellowhawk creeks, and very limited adult return information. Our proposal will complement and enhance the current efforts by CTUIR by greatly increasing the number of PIT tagged fish (hatchery spring Chinook) in the basin for a short period providing much needed juvenile and adult passage and survival data in Mill Creek. In addition, our proposal will add a PIT tag array in lower Mill Creek (Whitman Mission) that in conjunction with other PIT tag array sites within Mill Creek (upper and lower Yellowhawk, Gose Street (to be added in spring 2023), Mill Creek Division and Bennington Dam, and an array added in the concrete channel near the Roosevelt Street bridge) can be used to estimate overall survival, conversion, and passage times of any PIT tagged salmonid in Mill/Yellowhawk creeks.

#14: How will the study contribute to validating or revising current management strategies for recovery or assessing progress toward delisting the focal species? Include explicit ties of the proposed monitoring to advancing our knowledge of viable salmonid populations (VSP) parameters (abundance, productivity, spatial structure, and diversity) of the focal species.

This study will not contribute to progress in delisting the focal species, as the focal species (spring Chinook) are functionally extinct in the current system. However, the data gathered could help inform spatial distribution of other focal species in the basin (natural origin summer steelhead, bulltrout) and limiting factors to their movement throughout the project area.

#15: Describe the sponsor and project partners' knowledge, planning, and experience with this type of project, and how this will ensure that the project will yield meaningful information. Identify the project's Principle Investigator and describe their relevant experience.

WDFW and CTUIR both have experience in the installation/operation/maintenance of instream PIT tag arrays, and implanting large numbers of PIT tags in salmonids. Further, each agency has performed analysis to estimate conversions and passage times from PIT tag monitoring sites.

#16: How have lessons learned from other completed projects or monitoring studies informed this project?

Previous monitoring by USFWS on bull trout in Mill Creek has been used as a partial guidance for this monitoring proposal. However, the PIT array technology and radio telemetry equipment used during that assessment pale in comparison to today's standards. The results of that study indicate that there were passage obstacles to bull trout at the time that work was performed. Augmentation of the concrete channel has happened since that study, and the additional PIT tags in anadromous returning adults will greatly increase passage data in the system. In addition, more arrays will be present in the basin (lower ends of each tributary) which will also greatly improve the results and increase the possibility of successfully compiling future steelhead and bull trout passage data.

#17: How were stakeholders consulted in the development of this project? Identify the stakeholders, their concerns or feedback, and how those concerns were addressed.

The Regional Technical Team (represented by multiple agencies) provided feedback and comments on 2/15/2023. The proposal also received a Regional Monitoring Certification from the Snake River Salmon Recovery Board on 2/28/2023.

#18: Has the appropriate region shown its support for this project by signing and submitting regional certification?

Yes, it was presented to the Snake River Salmon Recovery Board and received the required Regional Monitoring Certification by the Board on 2/28/2023.

Monitoring Supplemental

#1: Instructions for answering Monitoring questions (no response needed): Regional Monitoring Study Plan - Proposed monitoring study plans need to be based on clearly identified and sound scientific principles and valid assumptions and include technically sound methods and analytical techniques adequate to achieve the project goals and objectives. If the study plan has been reviewed by a qualified expert from an external organization, please so state. Please answer the following questions about your Monitoring Project Study plan and attach supporting documentation that may include, figures, tables, photos, and citations. Clearly cite published papers and reports referenced within the study plan, and, if available, provide electronic links. If supporting documents are not publicly available, they should be loaded onto PRISM. Where appropriate, a brief literature review can be included in the study plan.

A Monitoring Study Plan has been attached

#2: What are the project's goals? The goal of the project should fill specific gaps in information essential to salmon recovery efforts. The goal statements should broadly articulate desired ecological outcomes of the proposed activity.

The overall goal for project is to determine passage (conversion and passage times) of salmonids through Mill and Yellowhawk creeks. There is currently very limited information on conversion and passage times of salmonids through the Mill Creek basin (Mill Creek and Yellowhawk Creek). Information obtained from this study may guide future habitat actions within the extremely effected area of Mill and Yellowhawk creeks. Any future improvements will likely be positive for all ESA listed salmon recovery efforts within the basin (steelhead and bull trout).

#3: What are the project's monitoring questions and objectives? Objectives support and refine the goals, breaking them down into smaller steps. Objectives are specific, quantifiable actions the project will complete to achieve the stated goal. Each objective should be SMART (Specific, Measurable, Achievable, Relevant, and Time-bound). State SMART objectives as expected "outcomes" rather than "output." Monitoring project objectives should tell a reader what the sponsor wants to learn rather than what they will do.

The principal objectives for the project include: 1) estimate overall conversion of PIT tagged adult spring Chinook salmon from lower Mill and Yellowhawk creeks past Bennington Dam, and 2) estimate passage time and rates of PIT tagged adult spring Chinook from lower Mill and Yellowhawk Creeks past Bennington Dam. Conversion rates and passage times will be estimated from PIT tag detections via PIT tag arrays through the basin. As currently designed, detections will take place between 2024-2026. Data will inform in additional actions are still needed to improve passage within the basin.

#4: Provide clearly stated, testable hypotheses. Each hypothesis should have identified deliverables or outputs. These outputs should relate to an outcome for the project (e.g., what will be learned and applied to future management or projects). If not applicable, enter N/A.

1) Conversion of adult PIT tagged spring Chinook from 2024-2026 from either lower Mill Creek and/or Yellowhawk Creek to above Bennington Dam will be 100%. 2) Passage times of adult PIT tagged spring Chinook from 2024-2026 from lower Mill Creek and/or Yellowhawk Creek to above Bennington Dam will be 2 days or less. Conversions less than 100% or passage times >2 days should be further investigated.

#5: Scope of work and deliverables. Provide a detailed description of each project task/element and how they will lead to the objectives. With each task/element, identify who will be responsible for each, what the deliverables will be, and the schedule for completion.

1) Implant hatchery spring Chinook with PIT tags (15,000) in 2024, (WDFW and CTUIR joint operation). Release hatchery spring Chinook into upper Mill Creek (CTUIR) in spring of 2024.
2) Install new IPTDS in lower Yellowhawk Creek and lower Mill Creek in late 2023/early 2024.
3) Operate/maintain all IPTDS at all locations within Mill/Yellowhawk Creeks to make sure they fully functional when spring Chinook adults return.
4) Automatically upload data when possible, or manually download IPTDS when needed and upload data to PTAGIS for data storage.
5) Begin creating a list of jack spring Chinook PIT tags over Bonneville Dam in 2024 and adults beginning in 2025
6)Assess passage of the annual cohort of returning adults throughout the project area by compiling detections from all arrays.
7) Analyze adult passage (travel days, km/day, conversion rates) through the project area
8)Report findings

#6: Sampling design. Describe the scale, spatial and temporal replication, stratification and site selection of the proposed monitoring design. Provide map of the proposed sampling locations if already selected. If locations are not yet defined, describe the process by which the sponsor will identify and select sampling locations.

For the primary objectives of this project, the scale is limited to the Mill Creek Watershed, specifically from lower Mill Creek (proposed at Whitman Mission at this time - discussion have occurred with the National Park Service but a final location will not be determined until later in the proposal process), lower Yellowhawk Creek (private landowner has agreement with CTUIR) to the upper most part of the Corps of Engineers footprint in Mill Creek (Bennington Dam - PIT tag arrays are already in place, with a new PIT tag detection system in the north shore ladder to be constructed within a year). Other PIT tag arrays are also currently operated by CTUIR at the Mill Creek Division Works (which includes upper Yellowhawk Creek). Maps of the work area have been attached for reference. Specific to spring Chinook, the temporal time scale on which PIT tag data will be obtained will typically be from April - July each year, the time at which jacks/adults are expected to return to the Walla Walla River basin.

#7: Data collection methods and protocols. Describe or reference field methods, essential equipment, and any applicable laboratory or data processing procedures.

All data collected will be from detections of PIT tags in salmonids at PIT tag arrays within the basin. Data from each site will be queried from PTAGIS as needed. Calculations for conversion will be based on detections at the lowest site to the upper site (or at intervals in-between) as needed. Conversion will be calculated as N1 (total detection of target species at lowest site)/N2 (total detections of target species at upper sites). Sites in-between may also be used as necessary. Passage times (the time it takes a fish to travel from one site to another) will be based on first date of detection at each site, and will be calculated in the units of hours or days as needed. Essential equipment needed are PIT tags (within fish) and instream PIT tag arrays.

#8: Is the methodology proposed a widely accepted?

Yes

#8a: List some of the other recent work using these methods.

Calculations of passage conversion and passage times from PIT tag detections have been used in both the Imnaha and Tucannon River basins for bull trout assessments in each (Bumgarner J. D., 2022, and Sankovich, P.M. and T.A. Whitesel. 2021). These reports and their methodologies can be found at the following Internet Site (https://www.fws.gov/office/lower-snake-river-compensation-plan/library). In addition, a previous assessment of bull trout passage in Mill Creek (pre-passage improvement period) was completed by the USFWS (Koch R. C., 2014)

#9: Is the methodology new or novel?

No

#10: Applicability. Describe the scale of inference of the proposed study design and analyses. That is, does this project allow for project results to be inferred beyond the initial geographical scale of the project. If so, will the results be applicable at the reach scale, watershed scale, population scale, ESU/DPS scale, or larger scales?

No. Due to the specific nature of Mill Creek (concrete channel) and the impacts this has caused to the stream and fish passage, it is a pretty unique circumstance that is not applicable to other locations.

#11: Measured and Derived Variables. Describe or reference the response variables, to be measured or calculated, and provide the rationale for their selection.

Conversion rate: percentage of adults that enter and then pass through the study area. Travel time: the amount of time it takes an individual to travel through the study area. These two variables will allow us to assess fish passage through the study area.

#12: Are the selected variables consistent with ongoing monitoring efforts in the region? If not, provide justification for the departure.

Yes, these variables are used throughout the region for assessing fish movement and passage.

#13: Analytical approach. Describe the statistical tests and data analysis used to test the hypotheses identified above. Include a preliminary power analysis.

The analysis is very basic. The number of adults detected traveling through the upper most detection location divided by the number entering the project area is the conversion rate. For travel time, the date difference between the first and last detection at a specific location.

#14: Data management. Describe the approach that will be used to review (QA/QC), manage, store, and archive data to ensure data quality and accessibility.

The annual PIT tag tagging file will be uploaded each spring following release to the PTAGIS web site (data repository for all PIT tag data in the Columbia River Basin). PIT tag detection data from IPTDS sites will be uploaded daily via modems or satellite modems to PTAGIS per existing contracts, or sites will be manually downloaded as needed and uploaded to PTAGIS. All uploaded data is automatically QA/QC by PTAGIS before final loading into the database. Any data problems are identified at that time, with messages sent back to the contact if data need to be corrected. All data contained with PTAGIS can then be queried as need by detection site for analysis.

#15: Reporting. Describe the reporting format(s) used, and frequency and timeline for reporting monitoring results.

Written reports will be in Microsoft Word, or converted to PDF for file submission. Annual reports will be produced on a yearly basis. Other reporting of results will likely occur in the form of oral presentations to the local Salmon Recovery Board or Regional Technical Team, or at large venues when possible (e.g., American Fisheries Society Symposiums)

#16: Dissemination of results. Describe the process for disseminating data, results, and reports.

PIT tag data will be uploaded to the PTAGIS web page (repository for all PIT tagged data in the Columbia River basin). Results from the study (passage conversions and passage times) will be written up in progress or final reports to RCO. A peer-reviewed journal article may also be completed.

#17: Peer Review. Do you plan to publish the results in peer-reviewed literature?

Yes, if possible

#18: Identify scientific assumptions and constraints that could affect the sponsor's ability to achieve objectives and how the sponsor will modify the approach if the sponsor does not meet assumptions.

All of the passage data (conversion or passage times) will be generated by PIT tag Arrays (current or planned) in Mill Creek or Yellowhawk Creek. Damage to PIT arrays from high stream flow events, loss of power, etc....) can/will detectability of PIT tagged fish. Lack of detection at a particular site may there for limit the analysis that can be completed on passage conversion and passage times. Having multiple PIT tag arrays sites scattered throughout the Mill Creek basin will allow for some redundancy in detection, with multiple sites potentially having to be used to estimate passage.

#19: What other assumptions and/or physical constraints could impact whether you achieve your objectives? In this case, assumptions and constrains are external conditions that are not under the direct control of the project, but directly affect the outcome of the project. These may include ecological and geomorphic factors, land-use constraints, public acceptance of the project, delays, or other factors. How will you address these issues if they arise?

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Monitoring Metrics

Worksite: Whitman Mission National Historical Site (#1)

Priority in Recovery Plan	Mill Creek from the mouth to headwaters is identified as a summer steelhead MSA in the SRSFB recovery plan. The project array located at the mouth of Mill Creek would allow for monitoring of returning adult spring chinook and steelhead to be enumerated via PIT tags, filling in a current data gap.
Number of Reports Prepared (E.0.e.1)	0
Name Of Report (E.0.e.2)	None
Project Identified in a Plan or Watershed Assessment (E.0.c)	None
Number of Cooperating Organizations (E.0.d.1)	1
Name Of Cooperating Organizations (E.0.d.2)	CTUIR
Complement Habitat Restoration Project (E.0.b)	All passage work previously completed and slated to be completed in the concrete channel in Mill Creek.

MONITORING

Acres of watershed area monitored (E.1.b.2)	58,240.0
Record Name Of Strategy/Program (E.1.d)	WDFW/CTUIR
Stream Miles Monitored (E.1.b.1)	10.00

Adult salmonid population monitoring (E.1.c.1)

# miles of stream or lakeshore(to nearest 0.01 mile) monitored for adult salmonids (E.1.c.1.a)	10.00 **Note:** Not actually population monitoring. The closest field to what we will be doing, which is looking at passage of PIT Tagged adults through a distinct reach (Mouth of Mill Creek and Yellowhawk Creek up to Bennington Dam).
Total cost for Adult salmonid population monitoring	$152,487 **Note:** Mill Creek Array + 15K PIT Tags

AGENCY INDIRECT COSTS

Agency Indirect

Total cost for Agency Indirect	$53,370

Worksite: Mouth of Yellowhawk Creek (#2)

Priority in Recovery Plan	Similar to Mill Creek, Yellowhawk Creek is identified as a MSA for summer steelhead.
Number of Reports Prepared (E.0.e.1)	0
Name Of Report (E.0.e.2)	None
Project Identified in a Plan or Watershed Assessment (E.0.c)	None
Number of Cooperating Organizations (E.0.d.1)	1
Name Of Cooperating Organizations (E.0.d.2)	CTUIR
Complement Habitat Restoration Project (E.0.b)	None

MONITORING

Acres of watershed area monitored (E.1.b.2)	61,248.0
Record Name Of Strategy/Program (E.1.d)	CTUIR
Stream Miles Monitored (E.1.b.1)	8.00

Adult salmonid population monitoring (E.1.c.1)

# miles of stream or lakeshore(to nearest 0.01 mile) monitored for adult salmonids (E.1.c.1.a)	8.00
Total cost for Adult salmonid population monitoring	$0 **Note:** Part of the initial ask, but CTUIR should be able to piece together from existing equipment

Project Application Report - 23-1040

Overall Project Metrics

COMPLETION DATE	
Projected date of completion	12/31/2026

Monitoring Cost Estimates

Worksite #1: Whitman Mission National Historical Site

Category	Work Type	Estimated Cost	Note
Agency Indirect Costs	Agency Indirect	$53,370	
Monitoring	Adult salmonid population monitoring (E.1.c.1)	$152,487	Mill Creek Array + 15K PIT Tags
	Subtotal:	$205,857	
	Total Estimate For Worksite:	$205,857	

Worksite #2: Mouth of Yellowhawk Creek

Category	Work Type	Estimated Cost	Note
Monitoring	Adult salmonid population monitoring (E.1.c.1)	$0	Part of the initial ask, but CTUIR should be able to piece together from existing equipment
	Subtotal:	$0	
	Total Estimate For Worksite:	$0	

Summary

Total Estimated Costs:	$205,857
Total Estimated Monitoring Costs:	$205,857

Cost Summary

	Estimated Cost	Project %	Admin/AA&E %
Monitoring Costs			
Monitoring	$205,857		
SUBTOTAL	$205,857	100.00 %	
Total Cost Estimate	$205,857	100.00 %	

Funding Request and Match

FUNDING PROGRAM

Salmon State Projects	$136,737	66.423294 '

SPONSOR MATCH

Donated Paid Labor	Sponsor Payroll	
Amount		$69,120.00
		Note: Funding match will be installation costs for labor, as well as O&M. 15K PIT tags put out in 2023 spring chinook release
Funding Organization		Department of Fish and Wildlife
	Match Total:	$69,12033.576706 '
	Total Funding Request (Funding + Match):	$205,857100.00000(

Attachments

Required Attachments	3 out of 3 done
Cost Estimate	✓
Monitoring Study Plan	✓
RCO Fiscal Data Collection Sheet	✓

PHOTOS (JPG, GIF)

Photos (JPG, GIF)


549950


550349


550350


550351


550901

PROJECT DOCUMENTS AND PHOTOS

Project Documents and Photos

File Type	Attach Date	Attachment Type	Title	Person	File Name, Number Associations	Shared
	03/08/2023	Monitoring Study Plan	SAL-RegMonitoringStudyPln_Mill Creek Fish Passage Assessment	MichaelH	SAL-RegMonitoringStudyPln_Mill Creek Fish Passage Assessment Final.docx, 554047	✓
	02/28/2023	Cost Estimate	SAL-CostEstimate Mill Creek Assessment_Updated.xlsx	MichaelH	SAL-CostEstimate Mill Creek Assessment_Updated.xlsx, 553308	✓
	02/07/2023	RCO Fiscal Data Collection Sheet	FiscalDataCollectionSheet_RCO 23-1040 Mill Creek Fish Passag	MichaelH	FiscalDataCollectionSheet_RCO 23-1040 Mill Creek Fish Passage Assessment.pdf, 551024	
	02/06/2023	Photo	IPTDS Instream PIT Tag Detection System	MichaelH	IMG_1054.jpg, 550901	✓
	02/01/2023	Project Review Comments	Project Review Comments Report, 23-1040M (02/01/23 14:48:54)	AliceR	Project Review Comments Report - 23-1040 (02-01-2023_14-48-54).pdf, 550369	✓
	02/01/2023	Project Application Report	Project Application Report, 23-1040M (02/01/23 14:48:54)	AliceR	Project Application Report - 23-1040 (02-01-2023_14-48-54).pdf, 550368	✓
	02/01/2023	Landowner acknowledgement form	YHC LandownerAckForm.jpg	MichaelH	YHC LandownerAckForm.jpg, 550351 Worksite #2: Mouth of Yellowhawk Creek	
	02/01/2023	Map: Planning Area	MC_YWH Worksite MAP.JPG	MichaelH	MC_YWH Worksite MAP.jpg, 550350	✓
	02/01/2023	Map: Area of Potential Effect (APE)	MC YHC APE MAP.JPG	MichaelH	MC YHC APE MAP.jpg, 550349	✓
	01/30/2023	Photo	PIT Tagging.jpg	MichaelH	PIT Tagging.jpg, 549950	✓
	01/30/2023	Map: Planning Area	General Vicinity Map Mill Creek Assessment.pptx	MichaelH	General Vicinity Map Mill Creek Assessment.pptx, 549945	✓
	01/30/2023	Landowner acknowledgement form	Landowner Acknowledgement Form NPS - Fish Tag SGT.docx	MichaelH	Landowner Acknowledgement Form NPS - Fish Tag SGT.docx, 549944 Worksite #1: Whitman Mission National Historical Site	

Application Status

Application Due Date: 06/27/2023

Status Name	Status Date	Submitted By	Submission Notes
Application Submitted	04/13/2023	Michael Herr	
Preapplication	01/09/2023		

I certify that to the best of my knowledge, the information in this application is true and correct. Further, all application requirements due on the application due date have been fully completed to the best of my ability. I understand that if this application is found to be incomplete, it will be rejected by RCO. I understand that I may be required to submit additional

documents before evaluation or approval of this project and I agree to provide them. (Michael Herr, 04/13/2023)

Date of last change: 04/13/2023